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THE MONTANA POWER COMPANY

1978 LONG RANGE PLAN

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THE MONTANA POWER COMPANY

ANNUAL LONG RANGE PLAN

Filed as of April 1, 1978

Pursuant to the Montana Major Facilities Siting Act

I. 1. INTRODUCTION

Pursuant to Section 70-814 of the Montana Major Facilities Siting Act, hereinafter referred to as the "Act", and Section 36-2.8(6)-S870 of the regulations issued thereunder, hereinafter referred to as "Regulations", The Montana Power Company hereby submits as of April 1, 1978, its annual Long Range Plan to the Montana Department of Natural Resources and Conservation and requisite state agencies. Certain voluminous exhibits which are part of this Long Range Plan are not included in each copy of the plan, but are on file with the Montana Department of Natural Resources and Conservation for inspection.

It should be noted that the information in this Long Range Plan represents the best efforts of The Montana Power Company to set forth its plans and projections based on present knowledge, data and circumstances. Because present circumstances may unpredictably change, the plans and projections set forth herein may also necessarily change.

II. THE GENERAL LOCATION, SIZE AND TYPE OF THE UTILITY FACILITY TO BE OWNED AND OPERATED BY THE MONTANA POWER COMPANY, WHOSE CONSTRUCTION IS PROJECTED AS OF APRIL 1, 1978, TO COMMENCE DURING THE ENSUING TEN YEARS, AS WELL AS THOSE FACILITIES TO BE REMOVED FROM SERVICE DURING THE PLANNING PERIOD.[1]

II.1 Energy, Generating and Conversion Plant and Associated Facilities

Energy, generating and conversion plants to be owned and operated by The Montana Power Company whose construction is projected to commence during the ensuing ten (10) years, including an estimate of applicable filing and construction dates, are shown on the attached chart entitled "Generation Alternatives" marked Exhibit "A", and are explained below.

II.1.1 Colstrip Units 3 and 4

Application for a 1400 megawatt coal-fired steam generation plant (Colstrip Units 3 and 4) to be built at Colstrip, Montana, was filed by The Montana Power Company along with Puget Sound Power & Light Company, Portland General Electric Company, The Washington Water Power Company and Pacific Power & Light Company ("Applicants") on June 6, 1973. The Applicants requested construction of Colstrip Units 3 and 4 be allowed to commence on or before May 1, 1974. The Applicants originally scheduled commercial operation of Colstrip Unit 3 to commence in July 1978 and Unit 4 to commence in July, 1979. The Applicants' schedule for Colstrip

1. Montana Major Facilities Siting Act 70-814(1)(a); Montana Administrative Code §36-2.8(6)-S870(1)(a)(b)(c)(2)

Units 3 and 4 has and is being delayed as a result of government administrative proceedings and litigation. The Applicants cannot determine when and how the administrative proceedings and litigation will be resolved and, therefore, cannot predict precisely the commercial operation date of Colstrip Units 3 and 4. However, Colstrip Unit 3 commercial operation is now scheduled for July 1982, and Colstrip Unit 4 commercial operation is now scheduled for May 1983, provided necessary permits are now received in a timely fashion.

II.1.2 Hydro Generation

The Montana Power Company presently has a license to operate and use the power from Kerr Dam in Western Montana, which license expires in 1980.

The Montana Power Company filed an application in May 1976, to renew the license to operate the Kerr hydro-electric facility. The Confederated Kootenai and Salish Tribes ("Tribes") filed a competing application in July 1976. The Federal Energy Regulatory Commission has taken no action on the applications.

If The Montana Power Company can reach agreement with the Tribes, The Montana Power Company is considering and studying the possibilities of installing a fourth 60-80 megawatt unit at Kerr and/or modifying the present Kerr units to increase present capacity by about 13-17%. Implementation of either of these possibilities would require receipt of a new license from the Federal Energy Regulatory Commission.

In any event, construction on either of these projects would not commence prior to the mid-1980's because of federal licensing requirements.

The Montana Power Company and the Tribes filed application with the Federal Power Commission for the construction of two hydroelectric projects referred to as "Buffalo Rapids No. 2" and "Buffalo Rapids No. 4", to be located on the Flathead River in Sanders and Lake Counties, Montana. By Order issued December 15, 1975, the Federal Power Commission dismissed the application because no agreement was reached between the Company and the Tribes. If and when "Buffalo Rapids No. 2" and "Buffalo Rapids No. 4" are built depends on whether the Company can reach an agreement with the Tribes, then refile for and receive a license from the Federal Energy Regulatory Commission for the proposed units.

II.1.3 Other Generation

Assuming that Colstrip Units 3 and 4 are constructed as discussed above, The Montana Power Company system would become peak deficient starting in 1987-88, and energy deficient in 1988-89 as described in Part V below. To cover these deficiencies, different possibilities or a combination thereof exist. However, not all of such possibilities would be developed within this time frame. Construction of Buffalo Rapids No. 2 and No. 4 and/or adding a fourth unit at Kerr, and/or increasing capacity at Kerr are possibilities as discussed in Paragraph II.1.2 above. Participation by The

Montana Power Company in generation plants outside Montana, or construction of additional thermal generation somewhere in Montana are other possibilities.

The location of such a plant depends on numerous considerations, including availability of water, proximity to a railroad or coal mine, adequate space for a plant and associated facilities, adequate terrain and air quality, and other environmental considerations. Possible sites that may meet these considerations include the Colstrip area, an area near the mouth of the Big Horn River, an area near Whitehall, Montana, an area near Cascade, Montana, or an area east of Great Falls, Montana. Montana Power plans to begin site screening studies in the summer of 1978 for future base load thermal plants.

II.1.4 Alternate Energy and Conservation

We are also considering the possible development of wind power, geothermal power, small hydro power, pumped storage and solar power, none of which will be available in the quantities and time necessary to meet our deficiencies as a substitute for Colstrip 3 and 4. If Colstrip Units 3 and 4 are not constructed as planned, substantial load curtailment will be required because Montana laws make it impossible to construct a viable alternative within the necessary time frame.

The Montana Power Company has an active conservation and alternate energy program. This includes communications with the public regarding conservation, surveys of industrial customers to identify possible opportunities for co-generation, and construction of four homes at Colstrip using different heating systems, including solar.

II.2 Gasification Plant and Associated Facilities

The Montana Power Company is continuing investigation of economics and feasibility of coal gasification. At this time, we have no plan for engineering, locating, siting, financing, or constructing such a plant. A partner or partners, with substantial financial standing, would be required to raise the necessary capital for such a plant. We are presently investigating the possibility of a joint gasification project with Montana-Dakota Utilities Company. Whether a coal gasification plant or plants would be proposed within the next ten years will depend, among other things, on such factors as the continued availability of gas from Canada, new discoveries of gas available to Montana Power in Montana and neighboring states, an Alaskan pipeline which would make gas available to Montana, and development of gasification technology and availability of capital.

II.3 Electric Transmission Lines

Electric transmission lines projected to commence during the next ten years may be classified for purposes of

discussion into two groups. The first group consists of those transmission lines for which application has or will most likely be made, or a certificate has been recieved. A second group consists of transmission lines which are now under study by The Montana Power Company for maintaining adequate service to customers for which application may be made during the next ten years. Whether and when these facilities will be built depends upon several factors, including the results of studies now under way by The Montana Power Company, and future load growth, and the location of new generation that comes on line.

The transmission lines in this first group with their general location and appropriate length and voltage, and their approximate date for filing of application, pre-construction and construction, are shown on the attached chart marked Exhibit "B". Preconstruction activities may include surveying, environmental assessments, right of way acquisition, and centerline location.

The transmission lines in the second group along with their approximate general location, approximate length and voltage, and approximate date for filing of application and construction are shown on the attached chart marked Exhibit "C".

III. A DESCRIPTION OF EFFORTS BY THE MONTANA POWER COMPANY TO COORDINATE ITS PLANS WITH OTHER UTILITIES AS TO PROVIDE A COORDINATED REGIONAL PLAN FOR MEETING THE UTILITIES' NEEDS OF THE REGIONS.[2]

III.1 General

Two basic facts are evident from examining The Montana Power Company's coordinated regional planning. First, there is a great amount of cooperation among private and public utilities in the Pacific Northwest. Secondly, there are many benefits to The Montana Power Company and other utilities in the Pacific Northwest and to their customers as a result of this regional cooperation.

The Montana Power Company regional efforts to improve its system reliability and availability of power supply are directed primarily to cooperation with other utilities in the Columbia River Basin of the Pacific Northwest because the River Basin provides a logical planning unit from an historical, geographical and electrical system standpoint.

The Montana Power Company has many agreements, as described in detail below, with other utilities in the Columbia River Basin. Montana Power Company continues these regional efforts to improve reliability and availability of power supply with the publicly owned utilities (such as rural cooperatives, municipals, and public utility districts) and

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2. Montana Major Facilities Siting Act §70-814(1)(b) R.C.M. 1947; Montana Administrative Code §36-2.8(6)-S870(5).

with privately owned utilities (such as Puget Sound Power and Light Company, The Washington Water Power Company, Portland General Electric Company, Pacific Power and Light Company, etc.) and with other government agencies (such as Bonneville Power Administration, Corps of Engineers and Bureau of Reclamation). Montana Power also works closely with utilities in Montana, including the rural cooperatives.

III.2 Cooperation Among Utilities

Cooperation among utilities in the Pacific Northwest has historically evolved, and now is structured by various organizations and agreements. For example, these organizations and agreements include:

(1) Western Systems Coordinating Council which was organized August 4, 1967, to promote reliability of bulk power electric systems in the West. Members now include 20 investor owned and 26 publicly or cooperative owned systems as well as 13 affiliated member electrical systems. The area covers all or parts of 14 western states and British Columbia. The purpose of the Council is to provide a formal means for exchange of data and information, and to make regional studies and recommendations that will have a favorable bearing on the reliability and adequacy of electric service in the West.

(2) The Pacific Northwest Utilities Conference Committee consists of 108 non-federal public agencies and five private companies. Its purposes include the coordination of load/resource planning in the Northwest region. The

Montana Power Company is now an active and formal member of the Committee.

(3) The Joint Power Planning Council also works with regional loads and resources. The Montana Power Company is actively represented in the Council.

(4) The Northwest Power Pool, of which The Montana Power Company is one of the organizers, coordinates the bulk power system operation in the Northwest area. It is a longstanding and successful voluntary power pool and one of the oldest in the nation. Members of the Northwest Power Pool coordinate and optimize their respective bulk system operations to enhance reliability and efficiency.

(5) The Intercompany Pool (ICP) is a formal power pool organization of seven investor-owned utilities within the Northwest Power Pool area. Its express purposes include joint planning for additional required resources and transmission, pooling of reserve requirements, and optimizing use and distribution of secondary energy among the members.

(6) The Pacific Northwest Coordination Agreement was culminated in 1964 after years of negotiation among private and public utilities on the Columbia River System. Its principal purposes are to coordinate and optimize hydro generation operation and to allow equitable distribution of benefits from hydro storage developments on the Columbia River Basin. It is also active in the development of large shared thermal-electric generating plants under the Hydro-thermal Program.

(7) The Pacific Northwest Power Company, of which The Montana Power Company is a participant, was formed to pursue development of hydro generation, particularly on the Snake River.

(8) Other agreements among individual utilities such as the AMPS Agreement (Associated Mountain Power Systems), consisting of Pacific Power and Light Company, Utah Power and Light Company, The Washington Water Power Company, The Montana Power Company and Idaho Power Company, are designed for the exchange of power and sharing of transmission capacity. For a limited period this agreement also provided for sharing the costs and outputs of particular steam-generating plants in Wyoming.

(9) The Montana Power Company has been working with Montana-Dakota Utilities to coordinate and optimize gas supply within their systems and Montana.

(10) There are also agreements and working relationships with the Federal Agencies such as the Bonneville Power Administration and the Bureau of Reclamation, and with various cooperatives in the State of Montana such as the Central Montana G & T and other system review with cooperatives in Montana. Presently the cooperatives are negotiating to participate in Colstrip 3 and 4.

III.2.1 Benefits of Regional Cooperation

The benefits of such regional agreements and organizations as discussed above are:

(1) Maximizing the use of resources;

(2) Minimizing the cost of energy to utility customers;

(3) Providing reliability and better service; and

(4) Minimizing environmental impact.

These benefits and objectives are studied and pursued in consideration of climates, water sheds, time zones, types of loads, etc., of each utility in the region. The exchange of power among utilities in the joint participation and construction and operation of facilities inures to all of these objectives.

An example of this type of regional planning by the Pacific Northwest utilities is found in the annual West Group Forecast of the Pacific Northwest Utilities Conference Committee, which lists the combined regional loads of the area and the combined resources available to meet those loads. Included in those resources are many jointly-planned plants to supply future resource requirements. Current summaries of loads and lists of future resources are shown on Exhibit "D" attached hereto excerpted from the 1978 West Group Forecast.

This regional cooperation allows a utility such as The Montana Power Company, which may have deficiency over a period of years, to import power from another state and utility in order to meet its deficiencies. Such an exchange of power and participation keeps the utility from having to build several small facilities every time the utility has a slight increase in load demand. The utility may be an

importer for a period of time, and then it may be an exporter, and then in a few years, it will become an importer again.

This exchange of power among utilities in the Northwest may also occur at certain times of the year and times of the day because of the diversity of peak loads among utilities in this region.

Secondly, regional cooperation and interconnected systems provide greater reliability to the customers of all regions. For example, if one utility's generation or transmission is out of service, another utility's facilities may help accommodate the utility with facilities out of service.

Thirdly, for the same amount of energy and service, the cost of construction and operation of fewer large facilities is less than the cost of construction and operation of many smaller facilities. This helps get energy to customers at the lowest possible rate.

Fourth, fewer large facilities often have less environmental impact than many smaller facilities. For example, one larger transmission line may be built in lieu of several smaller transmission lines.

In summary, these objectives and resulting benefits of regional cooperation are in the interest of each utility and each of their customers. It is submitted that the regional cooperation is envisioned in siting legislation such as the Montana Major Facilities Siting Act.

IV. A DESCRIPTION OF THE MONTANA POWER COMPANY'S EFFORTS TO INVOLVE ENVIRONMENTAL PROTECTION AND LAND USE PLANNING AGENCIES IN THE PLANNING PROCESS, AS WELL AS OTHER EFFORTS OF THE MONTANA POWER COMPANY TO IDENTIFY AND TO MINIMIZE ENVIRONMENTAL PROBLEMS AT THE EARLIEST POSSIBLE STAGE IN THE PLANNING PROCESS.[3]

IV.1 General Environmental Policy

It is The Montana Power Company's policy to participate to the extent practical with federal and state agencies, as well as citizen and public interest groups to insure that energy and environmental programs are coordinated in a manner conducive to logical problem solving.

IV.2 Participation in Land Use and Environmental Planning

The Montana Power Company will continue to evaluate new environmental technology as an integral part of its overall planning process. New technology employed by the Company includes a Venturi wet scrubber system serving Colstrip Units 1 and 2. As a result of the scrubber system, the units consistently operate at a fraction of federal and state air quality standards. An experimental chemical injector system currently is operating at the J. E. Corette Steam Plant in conjunction with the plant's electrostatic precipitator. As part of the preliminary work on Colstrip Units 3 and 4, the engineering staff has worked closely with the U. S. Environmental Protection Agency on meteorological and air quality modeling pursuant to meeting Class I air quality standards over the Northern Cheyenne Reservation, south of Colstrip.

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3. Montana Major Facilities Siting Act §70-814(1)(c).

The Montana Power Company historically has initiated, supported, and/or participated in a number of significant environmental monitoring programs, both on a single-study and a continuous-study basis.

For example, the Company has contracted with the Montana Agricultural Experiment Station, an agency affiliated with Montana State University, for scientific research on the impact of stack emissions on the total range ecosystem at Colstrip. Since 1973, The Montana Power Company has funded annual inspections of green plant production in the 200-square-mile area surrounding Colstrip. This inspection employs infrared aerial photography conducted by an independent consulting firm.

In-house environmental studies currently in progress include an analysis of the benthic community and water quality of Armells Creek and several ponds at Colstrip, and a study of the fish populations in West Rosebud Creek near Mystic Lake.

Currently, The Montana Power Company provides the Montana Department of Health and Environmental Sciences (DHES) with ambient air quality data gathered at several sites for a number of parameters in the Colstrip area. The DHES also receives from the Company periodic ground water samples from 28 sample wells.

The Montana Power Company has maintained membership in areawide planning organizations in Billings, Broadus, Kalispell and Bozeman. The objective of the organizations, facilitated by Section 208 of the Federal Water Pollution

Control Act (FWPCA), is to identify existing and potential water quality programs and to eliminate discharges of pollution by 1985. Also, under the FWPCA, The Montana Power Company submits to the State Health Department and to the Denver office of the Environmental Protection Agency quarterly reports on fifteen small sewage treatment plants and monthly reports on water discharge from the J. E. Corette Plant in Billings.

While the value of individual studies and programs in which The Montana Power Company participates is evaluated critically on a continuing basis, Montana Power is committed to the continuation of the vigorous, quality environmental program which it has sponsored in the past.

V. PROJECTIONS OF THE DEMAND FOR SERVICES RENDERED BY THE MONTANA POWER COMPANY AND EXPLANATION OF THE BASIS FOR SUCH PROJECTIONS, AND A DESCRIPTION OF THE MANNER AND EXTENT TO WHICH THE PROPOSED FACILITIES WILL MEET THE PROJECTED DEMAND.[4]

V.1 General

The Montana Power Company continuously monitors the demand for electricity and studies and pursues alternate resources to meet the demand. In addition to following national and regional trends in energy yse, and development in resource technology, the Company also makes load and resource forecasts of its own total system.

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4. Montana Utility Siting Act Section 70-814(1)(d); Montana Administrative Code Section 36-2.8(6)-S870(3)(4).

V.1.2 System Load and Resource Forecast for The Montana Power Company Total System

Load and resource forecasts are reviewed and updated frequently. This is necessary because of continuing changes in both load requests and patterns and resource possibilities. Exhibits "E" and "F" show Montana Power Company's current estimated load and resource situation. Exhibit "E" shows the loads and resources including Colstrip Units 3 and 4 and Exhibit "F" shows the loads and resources excluding Colstrip Units 3 and 4.

The load forecast used in these exhibits is the most recent total system load forecast made by the Company on November 11, 1977. As in previous forecasts, it was made by extrapolating a time series analysis of historical loads. More specifically, our historical loads are divided into two categories; a "base" component and a "block" component. The latter consists of a small number of large industrial users whose loads have exhibited no discernible trend over the years. Future loads for this group, both peak and average energy, are projected on a customer-by-customer basis after consultation with these "block" load customers. Future loads for the remaining component, the "base" component, are projected by extrapolating a least squares fit of the historical "base" loads.

V.1.2.1 Load Analysis and Management

The Montana Power Company is presently conducting a load management program designed to realize conservation potential, and an adequate, equitably priced electric power supply. This involves analysis of system load and economic factors affecting load, and is designed to achieve rate structures supporting an energy policy of conservation, alternate energy development and proper use of existing resources.

Efforts are currently underway to develop an econometric load forecasting model tailored specifically to Montana Power Company's service territory. It will relate electrical consumption to such economic and demographic factors as population, per capita income, price of electricity, price of natural gas, etc. It is envisioned that ultimately the model will be helpful in forecasting electrical consumption by broad customer classifications and by specific areas within our service territory. Such efforts should allow forecasting into the future in a format similar to the past history exhibited by typical customer classification for the years 1950-1977 that is shown in Exhibit "G". It should be noted that Exhibit "G" represents only metered sales which we have a responsibility to serve. Total load responsibility for which we must supply resources is the total sales plus system losses between the resource input and the customer meter.

Presently, our load forecast includes our estimate of cooperative loads for which we have historically supplied the resources, and may not agree with individual cooperative forecasts of their purchases from us. Negotiations are presently underway in which the cooperatives would jointly own a share of Colstrip Units 3 and 4. If these negotiations are consummated, it is expected that our obligation to serve the cooperatives would be limited and their future load growth would be served from their share of Colstrip 3 and 4.

Our current load forecasts do not specifically include some potential new industrial loads of which we are aware and which are sufficiently large to merit special treatment in the forecasting effort. The plans are not yet "firmed up" to the point where we feel we have a commitment to serve, so they are not yet included in the forecast. Four of these loads are: (1) the Northern Tier Pipeline load which might amount to 65-70 MW, (2) long range plans of Anaconda Company for deep-level, block-cave mining in Butte, which would require substantial additions to hoisting load, (3) an iron ore concentrator or processing plant near Dillon with a potential for 20-40 MW of load, and (4) an additional 20 MW of the 42 MW planned at Hoerner-Waldorf of which we were unaware at the time of preparation of the 11/17/77 forecast.

Several smaller industrial load additions which we know of and which are inherently included in the current forecast total some 22 MW by 1980.

V.1.3 Substation Load Analysis

In addition to making load and resource forecasts for its total system, The Montana Power Company also monitors loads on each of its approximately 600 substations throughout its service area. The monthly peak and average kilowatts used at each of these substations during 1977 are shown on the attached table marked Exhibit "H", entitled "1977 Peak and Average Kilowatt Readings for Distribution Substations". Future energy demand patterns of a substation unit area for annual increments for the next ten years are shown on the attached table marked Exhibit "I", entitled "Estimated Peak Substation Load in Kilowatts 1978-1987".[5] The area that each of the substations serve is indicated in the map format and the substation identified by its installation number as required by the regulations.[6] The map showing the substations is marked Exhibit "J".

The "NA" designation on Exhibit "H" indicates that the reading for that particular substation was not acceptable. Such a designation is a result of several possible reasons, including that the substation reading was obviously incorrect or no reading was reported.

The Estimated Peak Substation Load shown on Exhibit "H" is based on a recording period from April to April.

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5. Montana Administrative Code Section 36-2.8(6)-S870(4)

6. Montana Administrative Code Section 36-2.8(6)-S870(3)

The column headings are the year in which the recording period started. This is done so that winter peaks may be recorded for the three consecutive winter months of December, January and February; i.e., the 1977 peaks including December of 1977 and January and February of 1978 (January, 1977, is not included). The peaks indicated are not coincidental. They represent the maximum peak reading anticipated for the year and may occur at any time during the year.

The basic projections were made by fitting a compound growth curve by means of a least squares method fit to the existing data. The projections were then analyzed for their validity, taking into consideration the number of years of data the projection was based on, recent trends in the area, and expected load additions. If a projection made by the computer is obviously not valid, a reasonable prediction is made based on historical and known load growth data for the area.

V.1.4 Manner of Meeting Systems Loads

Projections based on continuous monitoring of substations and other factors are studied by The Montana Power Company to determine what expansion programs are necessary on its system. Expansion programs may mean increasing transformer size for capability, adding additional transformers or building new substations, or building new transmission or generation facilities. New substations or

a shifting of loads from substation to substation or transformer to transformer may give an erroneous impression of actual area growth. A careful analysis of changes which have taken place is necessary to determine actual load growth in an area. To establish load growth rates, many factors must be considered and analyzed. Weather conditions, extended outages, switching of loads, construction procedures, industrial and commercial development, urban development, development of residential subdivisions, irrigation and pumping, electric space heating and air conditioning requirements are some of these factors which must be considered as they may affect load growth rates. When accurate substation growth rates are determined, then "load flow" computer programs are developed from these rates and are used as an aid in determining transmission line requirements.

When it appears that additional transmission lines or generation are needed as a result of this monthly and yearly monitoring of substation load changes and as a result of all of the many other factors such as weather conditions, extended outages, switching of loads, industrial and commercial development, urban development, irrigation and pumping, etc., then more detailed studies of transmission line and generation requirements are made.

In addition to the continuous monitoring of the entire system by monthly and yearly changes, The Montana Power Company also takes into consideration the anticipated trends in type of load growth. For example, The Montana Power

Company considers inquiries or requests for major additional loads from industrial, agricultural or other sources. The Montana Power Company also considers and anticipates that certain uses of electricity, such as the use of electricity for sprinkler irrigation or home heating, will create substantial additions to its load demand.

The Montana Power Company, in an attempt to fulfill its responsibility to provide electric service to its customers, attempts to balance electrical resources against electrical load. This is done on both a peak and energy basis. Such forecasts must also include consideration of reserves which are required to make sure that the Company can serve its customers at all times. The forecasts also take into account required down time of plants and facilities for maintenance and contracts of exchange with other utilities. When it is determined that a new source of generation or transmission is needed, The Montana Power Company considers the alternatives for meeting these requirements and makes further detailed studies regarding the needed facility. As pointed out in Section III hereof, such studies are often conducted in cooperation with other utilities in the region.

V.1.5 Extent of Meeting System Loads

The general size and type of utility facilities to be owned and operated by The Montana Power Company, which are discussed in Section II above, are a result of all of these studies and considerations regarding projection and

demand. If the facilities that are proposed in Section II above are allowed to be built as scheduled by The Montana Power Company, such facilities should adequately meet the projected demand.

Because some of the facilities, including transmission lines such as Clyde Park-Big Sky-Dillon, and generating plants, such as Colstrip 3 and 4, have been delayed, primarily by regulatory authorities and litigation, there is an exposure and/or projections that customer demand will not adequately be met.

For example, if Colstrip Units 3 and 4 are not constructed as planned, Montana Power Company's peak margin over firm load and reserve requirements are estimated to change from 119 MW surplus in 1982-83 (with Colstrip 3 and 4) to a 59 MW deficit without Colstrip 3 and 4 in that year. (See Exhibits "E" and "F") Subsequent years without Colstrip 3 and 4 show increasing deficits. We could, under ideal conditions of no forced outages of any of our major resources, continue to serve peak load requirements out of our reserves until 1984-85; however, such service would require immediate, unplanned curtailment of substantial quantities of load should we suffer a forced outage or be called upon to supply contractual reserves to a neighbor utility under the Pacific Northwest Coordination Agreement or the Intercompany Pool Agreement.

The estimated energy deficiency is even more serious. If Colstrip Units 3 and 4 are not constructed as planned,

Montana Power could serve its predicted firm load during historical low water conditions in 1982-83 only if it is able tc obtain enough oil (at high cost) to run the Bird Plant at its full capability for the entire year. After this, we could not serve our firm energy load even with the Bird Plant running and during a normal water year.

The load/resource situation in the early 1980's for the combination of the five applicants for Colstrip Units 3 and 4 is similar to that of Montana Power Company. A peak surplus in the 1980's quickly disappears in 1983 without Colstrip 3 and 4 and substantial deficits (up to 1122 MW) are indicated thereafter. (Exhibits "K" and "L")

The five applicants' energy situation, which shows deficits in 1980-81 and 1981-82 because of the delays in Colstrip 3 and 4, indicates substantial energy deficits in later years even with Colstrip Units 3 and 4 as now scheduled. If the units are delayed further or not built, the energy deficit could reach nearly 2000 MW by 1984-85. These figures are shown on Exhibit "L" for the six years 1980-81 through 1985-86.

Even with Colstrip Units 3 and 4, the entire Pacific Northwest is deficient in energy resources to meet its forecasted load so we do not expect to be able to buy the energy from neighboring utilities. (Exhibit "D")

Whether replacement power adequate to fill energy deficits of this magnitude will be available is questionable. The indicated deficiencies will essentially use up any transmission capacity from California, where some limited amounts of high-cost oil generation might be available. This assumes that California will be allowed to build and operate, in a timely fashion, their planned resource additions. This assumption is tenuous at best.

EXHIBIT A

GENERATION ALTERNATIVES*

	1978 1st	1978 2nd	1978 3rd	1978 4th	1979 1st	1979 2nd	1980 1st	1980 2nd	1981	1982	1983	1984	1985	1986	1987
Colstrip #3	P	P	C	C	C	C	C	C	C	C					
Colstrip #4	P	P	C	C	C	C	C	C	C	C	C				
Buffalo Rapids**												C	C	C	C
Kerr Expansion**														C	C
330 MW Coal Fired Plant									F	P	P	P	C	C	C
Participation in Plant Outside Montana															
Other Generation															

F - File Application with Department of Natural Resources and Conservation

P - Preconstruction

C - Construction

*See Part II of Text for Explanation and Discussion

**Depend on Prior Agreement with Indians and FERC License

EXHIBIT "A"

EXHIBIT B

TRANSMISSION

Project & General Location	Voltage (kV)	Approx. Length (Miles)	1978 1st Qtr	1978 2nd Qtr	1978 3rd Qtr	1978 4th Qtr	1979 1st Half	1979 2nd Half	1980 1st Half	1980 2nd Half	1981	1982	1983	1984	1985	1986	1987	1988
Clyde Park-Dillon																		
(a) Clyde Park-Bozeman "B"	161	30	P	P	C	C												
(b) Clyde Park-Emigrant	161	39									P	C						
(c) Dillon-Ennis	161			P	P	P	C	C										
(d) Ennis-Big Sky	161			P	P	P	C	C										
(e) Bozeman-Ennis	161	52					P	P	C	C								
Broadview-Roundup-Glengarry*																		
(a) Broadview-Roundup	100			P	C	C												
(b) Roundup-Grass Range	100	44		P	C	C												
(c) Grass Range-Glengarry	100	35		P	C	C												
Great Falls - Conrad	115	60					FS	S	S	S	PC	C						
Colstrip-Broadview "B"	500	113	P	P	P	P	P	C	C	C								
Broadview-Hot Springs "A"	500	320	P	P	P	P	P	P	P	C	C	C						
Broadview-Hot Springs "B"	500	320	P	P	P	P	P	P	C	C	C	C						
Missoula-Hamilton Heights	161	60					P	C	C	C								

F - File Application
S - Study Time and Hearing
P - Preconstruction
C - Construction

*Joint Project With Fergus Electric Coop.

EXHIBIT "B"

EXHIBIT C

POTENTIAL TRANSMISSION PROJECTS FOR
MAINTAINING ELECTRICAL SERVICE AND
MEETING ELECTRICAL DEMANDS

Project & General Location	Voltage (kV)	Approx. Length (Miles)	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Bridger-Red Lodge-Nye	100	40		FS	S	SC	C						
Alkali-Laurel	230	15		F	S	C							
Rainbow-Two Dot Line-White Sulphur Springs	100	17		F	S	C							
Roundup-Sumatra	100	50			F	S	S	C					

F - File Application

S - Study and Hearings

C - Construction

EXHIBIT "C"

WEST GROUP FORECAST - ESTIMATED LOADS AND RESOURCES
JULY 1978-JUNE 1989

Figures are megawatts.	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
1. Total Area Peak Load (January)	24,617	25,871	27,228	28,591	29,877	30,978	32,239	33,511	34,855	36,294	37,739
2. Net Peak Resources 1/	30,679	32,645	33,435	35,286	35,936	38,202	40,697	43,185	44,970	47,016	47,082
3. Reserve Requirements	(2,954)	(3,363)	(3,812)	(4,289)	(4,780)	(5,266)	(5,803)	(6,367)	(6,971)	(7,259)	(7,548)
4. Net Peak Resources For Load	27,725	29,282	29,623	30,997	31,156	32,936	34,894	36,818	37,999	39,757	39,534
5. Peak Surplus (Over Total Load)	3,108	3,411	2,395	2,406	1,279	1,958	2,655	3,307	3,144	3,463	1,795
6. Total July-June Energy Load	16,072	16,867	17,758	18,715	19,504	20,219	20,972	21,752	22,550	23,394	24,271
7. Net Energy Resources 1/	15,350	15,586	15,939	16,891	17,568	18,196	19,445	21,349	22,493	23,206	23,402
8. Reserve Requirements	(340)	(316)	(321)	(373)	(341)	(349)	(369)	(377)	(394)	(411)	(423)
9. Net Energy Resources For Load	15,010	15,270	15,618	16,518	17,227	17,847	19,076	20,972	22,099	22,795	22,979
10. Energy Surplus (Over Total Load)	(1,062)	(1,597)	(2,140)	(2,197)	(2,277)	(2,372)	(1,896)	(780)	(451)	(599)	(1,292)
11. Interruptible Load -Peak	1,033	1,090	1,174	1,170	1,119	1,130	1,140	1,151	1,161	1,172	1,182
(Included in Lines 1 and 6) -Energy	1,035	1,076	1,147	1,160	1,108	1,118	1,128	1,139	1,149	1,160	1,170
12. Fossil-Thermal & Miscellaneous Resources -Peak	-	-	-	-	-	-	-	-	-	-	-
(Not Included Above) 2/ -Energy	571	577	571	571	571	571	571	563	563	563	563
Probability that Resources Will Be Insufficient to Meet Total Energy Load in at Least 1 Period of: 3/											
13. Year Shown -%	12.9	36.0	39.2	40.7	38.1	42.0	33.9	20.8	18.8	26.4	32.9
14. Years, 1978-79 Through Year Shown -%	12.9	40.8	59.8	73.4	82.3	88.4	91.7	93.0	94.0	95.2	96.3
Probability that Resources Will Be Insufficient to Meet Firm Energy Load in at Least 1 Period of: 3/											
15. Year Shown -%	1.6	9.9	11.4	14.5	15.2	17.8	13.3	4.1	3.2	6.0	13.0
16. Years, 1978-79 Through Year Shown -%	1.6	10.7	19.8	30.3	40.4	48.9	54.0	55.5	56.4	58.8	63.9

1/ Resources include hydro; small fossil-fuel plants; Hanford-NPR through June 1983; Centralia; Trojan; Colstrip #1 and #2 (50%), #3 and #4 (70%); WPPSS Nuclear #1, #2, #3, #4, #5; Boardman (90%); Skagit #1 and #2; Pebble Springs #1 and #2; and net contractual imports/exports with utilities outside the area. Hanford is not included as a peak resource. Estimated amounts for scheduled maintenance (energy only) and hydro realization factor (peak only) have been deducted. All existing thermal units and future thermal units under 500 megawatts (peak and energy) are included in amounts as submitted by respective project owners. The energy availability of all future thermal units 500 megawatts or larger has been included as 60% of the first full year and 75% thereafter.

2/ The energy megawatts tabulated in line 12 reflect the amounts of energy available from existing fossil and gas turbine installations which may be considered available as reserve energy resources. These amounts are in addition to those included as firm energy resources in line 7.

3/ Based on same load and resource data as other tabulations herein, except that there is no consideration of energy reserve requirements or realization factor. Study initialized on the basis of actual system conditions and streamflow forecasts made as of February 1, 1978.

WEST GROUP FORECAST - ESTIMATED LOADS AND RESOURCES - contd.
JULY 1978 - JUNE 1989

New Generating Units Installed During the Report Period

Plant	Initial Operation	Date of Completion	Nameplate Rating
Chief Joseph	Feb 1978	May 1979	760
Grand Coulee	Feb 1978	Feb 1979	2,100
Grand Coulee Pump-Generators	Dec 1980	Dec 1981	200
Rock Island	Jun 1978	Sep 1979	408
Lower Granite	Jan 1978	May 1978	405
Little Goose	Feb 1978	Jun 1978	405
Lower Monumental	Feb 1979	Apr 1979	405
Bonneville	May 1981	Jul 1982	558
Libby	Nov 1983	Nov 1983	420
Libby Reregulating	Jan 1984	May 1984	76
Cougar	Sep 1985	Sep 1985	35
Strube	Sep 1985	Sep 1985	4
Northeast Turbines	Oct 1978	Oct 1978	68
Colstrip #3 and #4 (70% for Area Resource)	Apr 1982	Feb 1983	980*
Skagit #1	Jul 1985	Jul 1985	1,330
Skagit #2	Jul 1987	Jul 1987	1,330
Boardman (90% for Area Resource)	Jul 1980	Jul 1980	504*
Pebble Springs #1	Apr 1986	Apr 1986	1,367
Pebble Springs #2	Apr 1989	Apr 1989	1,367
Jim Bridger #4	Dec 1979	Dec 1979	509**
Washington Public Power Supply System #2	Sep 1980	Sep 1980	1,100
Washington Public Power Supply System #1	Dec 1982	Dec 1982	1,373
Washington Public Power Supply System #3	Jan 1984	Jan 1984	1,316
Washington Public Power Supply System #4	Jun 1984	Jun 1984	1,373
Washington Public Power Supply System #5	Jul 1985	Jul 1985	1,316
Total New Installations			19,709

December 31, 1977 Installed Capacity - Hydro		22,988	
- Hanford Steam		800	
- Existing Thermal & Miscellaneous		1,342	
- Centralia		1,330	
- Jim Bridger #1, #2, #3		1,526**	
- Colstrip #1, #2		358*	
- Trojan		1,216	29,560
Total Installed Capacity - Megawatts			49,269

* Portion of plant shown as a West Group Area resource.
** Generation from Jim Bridger is included in imports from East.

SUMMARY OF RESOURCES

CONTRACT YEAR ENERGY CAPABILITY - Mw	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
1. Hydro 1/	12,045	12,066	12,110	12,150	12,142	12,147	12,149	12,130	12,129	12,113	12,107
2. Small Existing Thermal	149	156	155	155	155	155	155	153	153	153	153
3. Miscellaneous (Industrial)	9	9	9	9	9	9	9	9	9	9	9
4. Hanford Steam 2/	515	515	515	515	515	-	-	-	-	-	-
5. Centralia #1 and #2	919	919	919	919	919	919	919	919	919	919	919
6. Colstrip #1 and #2	251	251	251	251	251	251	251	251	251	251	251
7. Trojan	791	791	791	791	791	791	791	791	791	791	791
8. Boardman	-	-	191	334	358	358	358	358	358	358	358
9. WNP #2	-	-	110	688	825	825	825	825	825	825	825
10. Colstrip #3	-	-	-	74	312	368	368	368	368	368	368
11. Colstrip #4	-	-	-	-	122	325	368	368	368	368	368
12. WNP #1	-	-	-	-	62	766	938	938	938	938	938
13. WNP #3	-	-	-	-	-	62	760	930	930	930	930
14. WNP #4	-	-	-	-	-	0	438	860	938	938	938
15. Skagit #1	-	-	-	-	-	-	-	773	966	966	966
16. WNP #5	-	-	-	-	-	-	-	434	852	930	930
17. Pebble Springs #1	-	-	-	-	-	-	-	189	803	945	945
18. Skagit #2	-	-	-	-	-	-	-	-	-	773	966
19. Pebble Springs #2	-	-	-	-	-	-	-	-	-	-	189
20. Total Resources	14,679	14,707	15,051	15,886	16,461	16,976	18,329	20,296	21,598	22,575	22,951
21. Exports to East	(215)	(197)	(218)	(214)	(211)	(163)	(165)	(167)	(169)	(171)	(174)
22. Imports from East	965	1,152	1,179	1,138	1,072	1,062	963	903	899	818	683
23. Exports to Pacific Southwest	(435)	(432)	(429)	(282)	(128)	(40)	(40)	(40)	(40)	(30)	-
24. Imports from Pacific Southwest	429	429	429	429	429	415	415	415	263	72	-
25. Incremental Losses 3/	(20)	(20)	(20)	(11)	(2)	-	-	-	-	-	-
26. Estimated Hydro Maintenance	(53)	(53)	(53)	(55)	(53)	(54)	(57)	(58)	(58)	(58)	(58)
27. Net Energy Resources	15,350	15,586	15,939	16,891	17,568	18,196	19,445	21,349	22,493	23,206	23,402
28. Thermal & Miscellaneous Resources (Not included above)	571	577	571	571	571	571	571	563	563	563	563

1/ A tabulation of the hydro plants classified into three categories, Columbia mainstem, seasonal, pondage and minor, is shown in Section V.
2/ Hanford-NPR operation is available through June, 1983.
3/ Incremental losses from generator to border associated with deliveries under contracts with Pacific Southwest utilities.

SUMMARY OF RESOURCES

JANUARY PEAK CAPABILITY - MW	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
1. Hydro 1/	27,901	29,598	29,905	30,407	30,632	31,084	31,155	31,197	31,193	31,266	31,272
2. Small Existing Thermal	1,446	1,446	1,438	1,438	1,438	1,438	1,438	1,428	1,428	1,428	1,428
3. Miscellaneous (Industrial)	23	23	23	23	23	23	23	23	23	23	23
4. Centralia #1 and #2	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313
5. Colstrip #1 and #2	330	330	330	330	330	330	330	330	330	330	330
6. Trojan	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130
7. Boardman	-	-	477	477	477	477	477	477	477	477	477
8. WNP #2	-	-	0	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
9. Colstrip #3	-	-	-	-	490	490	490	490	490	490	490
10. Colstrip #4	-	-	-	-	-	490	490	490	490	490	490
11. WNP #1	-	-	-	-	0	1,250	1,250	1,250	1,250	1,250	1,250
12. WNP #3	-	-	-	-	-	0	1,240	1,240	1,240	1,240	1,240
13. WNP #4	-	-	-	-	-	-	1,250	1,250	1,250	1,250	1,250
14. Skagit #1	-	-	-	-	-	-	-	1,288	1,288	1,288	1,288
15. WNP #5	-	-	-	-	-	-	-	1,240	1,240	1,240	1,240
16. Pebble Springs #1	-	-	-	-	-	-	-	-	1,260	1,260	1,260
17. Skagit #2	-	-	-	-	-	-	-	-	-	1,288	1,288
18. Pebble Springs #2	-	-	-	-	-	-	-	-	-	-	-
19. Total Resources	32,143	33,840	34,616	36,218	26,933	39,125	41,686	44,246	45,502	46,863	46,869
20. Exports to East	(284)	(226)	(244)	(245)	(247)	(248)	(249)	(251)	(253)	(104)	(106)
21. Imports from East	1,597	1,886	1,920	1,768	1,716	1,657	1,595	1,528	1,457	1,379	1,296
22. Exports to Pacific Southwest	(1,864)	(1,864)	(1,864)	(1,464)	(1,464)	(1,314)	(1,314)	(1,314)	(736)	(144)	-
23. Imports from Pacific Southwest	100	100	100	100	100	100	100	100	100	100	100
24. Incremental Losses 2/	(84)	(84)	(84)	(57)	(57)	(50)	(50)	(50)	(26)	(1)	-
25. Hydro Realization Factor 3/	(929)	(1,007)	(1,009)	(1,034)	(1,045)	(1,068)	(1,071)	(1,074)	(1,074)	(1,077)	(1,077)
26. Net Peak Resources	30,679	32,645	33,435	35,286	35,936	38,202	40,697	43,185	44,970	47,016	47,082

1/ A tabulation of the hydro plants classified into three categories, Columbia mainstem, seasonal, pondage and minor, is shown in Section V.
2/ Incremental losses from generator to border associated with deliveries under contracts with Pacific Southwest utilities.
3/ These figures represent a 5% hydro realization factor on the Federal System due to inability to simultaneously generate aggregate of individual plant peaking capabilities.

THE MONTANA POWER COMPANY
LOADS AND RESOURCES
(Including Colstrip Units #3 and #4)

MARCH 1978
R.C.S.

Annual Peak - MW

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
FIRM PEAK LOAD	1034	1085	1129	1175	1223	1274	1327	1383	1442	1504
RESOURCES										
Hydro	520	520	520	520	520	520	520	520	520	520
Bird	70	70	70	70	70	70	70	70	70	70
Corette	180	180	180	180	180	180	180	180	180	180
Colstrip No. 1	165	165	165	165	165	165	165	165	165	165
Colstrip No. 2	165	165	165	165	165	165	165	165	165	165
*Colstrip No. 3	-	-	-	-	210	210	210	210	210	210
*Colstrip No. 4	-	-	-	-	-	210	210	210	210	210
BPA	110	50	50	50	50	50	50	50	50	-
BPA (wheeling)	12	13	14	15	17	18	19	21	23	24
BPA(Energy/Peak Trade)	100	100	100	100	100	100	100	100	100	-
Hanford Debt Service	20	20	-	-	-	-	-	-	-	-
WWP (Hanford Trade)	-20	-20	-	-	-	-	-	-	-	-
WWP (Hanford Trade)	42	43	-	-	-	-	-	-	-	-
WWP No. 1	-	-	80	80	80	80	80	80	80	80
TOTAL RESOURCES	1364	1306	1344	1345	1557	1768	1769	1771	1773	1624
Less Reserves	183	183	183	183	215	247	247	247	247	247
Interruptible Load Included	10	10	10	10	10	10	10	10	10	10
NET RESOURCES	1181	1123	1161	1162	1342	1521	1522	1524	1526	1377
SURPLUS OVER FIRM LOAD AND RESERVES	147	38	32	(13)	119	247	195	141	84	(127)

*Scheduled Commercial Operation Dates:
Colstrip No. 3 - July 1982
Colstrip No. 4 - May 1983

No maintenance is assumed during peak periods.

EXHIBIT "E"
Sheet 1 of 2

THE MONTANA POWER COMPANY
LOADS AND RESOURCES
(Including Colstrip Units #3 and #4)

MARCH 1978
R.C.S.

Operating Year Energy - MW

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
TOTAL ENERGY LOAD	748	783	820	855	892	931	972	1016	1062	1110
RESOURCES										
Hydro-Critical Water	337	337	337	337	337	337	337	337	337	337
Corette	139	139	139	139	139	139	139	139	139	139
Colstrip No. 1	140	140	140	140	140	140	140	140	140	140
Colstrip No. 2	140	140	140	140	140	140	140	140	140	140
*Colstrip No. 3	-	-	-	-	147	179	179	179	179	179
*Colstrip No. 4	-	-	-	-	25	152	179	179	179	179
BPA	30	20	10	5	-	-	-	-	-	-
BPA (wheeling)	16	17	19	20	22	23	25	27	29	32
BPA (Energy/Peak Trade)	-14	-18	-18	-18	-18	-18	-18	-18	-18	-3
Hanford Debt Service	20	20	-	-	-	-	-	-	-	-
Hanford Extension	49	49	49	49	49	-	-	-	-	-
WWP (Hanford Trade)	-20	-20	-	-	-	-	-	-	-	-
WNP No. 1	-	-	68	68	68	68	68	68	68	68
TOTAL RESOURCES	837	824	884	880	1049	1160	1189	1191	1193	1211
Less Maintenance	45	45	45	45	70	87	87	87	87	87
NET RESOURCES	792	779	839	835	979	1073	1102	1104	1106	1124
SURPLUS OVER TOTAL LOAD AND MAINTENANCE WITH CRITICAL WATER	44	(4)	19	(20)	87	142	130	88	44	14
Median Water Adder	51	51	51	51	51	51	51	51	51	51
BIRD-NET (only if oil is available)	60	60	60	60	60	60	60	60	60	60

*Scheduled Commercial Operation Dates:
Colstrip No. 3 - July 1982
Colstrip No. 4 - May 1983

EXHIBIT "E"
Sheet 2 of 2

THE MONTANA POWER COMPANY
LOADS AND RESOURCES
(Excluding Colstrip Units #3 and #4)

MARCH 1978
R.C.S.

Annual Peak - MW

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
FIRM PEAK LOAD	1034	1085	1129	1175	1223	1274	1327	1383	1442	1504
RESOURCES										
Hydro	520	520	520	520	520	520	520	520	520	520
Bird	70	70	70	70	70	70	70	70	70	70
Corette	180	180	180	180	180	180	180	180	180	180
Colstrip No. 1	165	165	165	165	165	165	165	165	165	165
Colstrip No. 2	165	165	165	165	165	165	165	165	165	165
BPA	110	50	50	50	50	50	50	50	50	-
BPA (wheeling)	12	13	14	15	17	18	19	21	23	24
BPA(Energy/Peak Trade)	100	100	100	100	100	100	100	100	100	-
Hanford Debt Service	20	20	-	-	-	-	-	-	-	-
WWP (Hanford Trade)	-20	-20	-	-	-	-	-	-	-	-
WWP (Hanford Trade)	42	43	-	-	-	-	-	-	-	-
WNP No. 1	-	-	80	80	80	80	80	80	80	80
TOTAL RESOURCES	1364	1306	1344	1345	1347	1348	1349	1351	1353	1204
Less Reserves	183	183	183	183	183	183	183	183	183	183
Interruptible Load Included	10	10	10	10	10	10	10	10	10	10
NET RESOURCES	1181	1123	1161	1162	1164	1165	1166	1168	1170	1021
SURPLUS OVER FIRM LOAD AND RESERVES	147	38	32	(13)	(59)	(109)	(161)	(215)	(272)	(483)

No maintenance is assumed during peak periods.

EXHIBIT "F"
Sheet 1 of 2

THE MONTANA POWER COMPANY
LOADS AND RESOURCES
(Excluding Colstrip Units #3 and #4)

MARCH 1978
R.C.S.

Operating Year Energy - MW

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
TOTAL ENERGY LOAD	748	783	820	855	892	931	972	1016	1062	1110
RESOURCES										
Hydro-Critical Water	337	337	337	337	337	337	337	337	337	337
Corette	139	139	139	139	139	139	139	139	139	139
Colstrip No. 1	140	140	140	140	140	140	140	140	140	140
Colstrip No. 2	140	140	140	140	140	140	140	140	140	140
BPA	30	20	10	5	-	-	-	-	-	-
BPA (wheeling)	16	17	19	20	22	23	25	27	29	32
BPA (Energy/Peak Trade)	-14	-19	-18	-18	-18	-18	-18	-18	-18	-3
Hanford Debt Service	20	20	-	-	-	-	-	-	-	-
Hanford Extension	49	49	49	49	49	-	-	-	-	-
WWP (Hanford Trade)	-20	-20	-	-	-	-	-	-	-	-
WNP No. 1	-	-	68	68	68	68	68	68	68	68
TOTAL RESOURCES	837	824	884	880	877	829	831	833	835	853
Less Maintenance	45	45	45	45	45	45	45	45	45	45
NET RESOURCES	792	779	839	835	832	784	786	788	790	808
SURPLUS OVER TOTAL LOAD AND MAINTENANCE WITH CRITICAL WATER	44	(4)	19	(20)	(60)	(147)	(186)	(228)	(272)	(302)
Median Water Adder	51	51	51	51	51	51	51	51	51	51
BIRD-NET (only if oil is available)	60	60	60	60	60	60	60	60	60	60

Exhibit "F"
Sheet 2 of 2

THE MONTANA [illegible] COMPANY
HISTORICAL [illegible]I SALES
(EXCLUDING IDAHO MINES)

	Total Sales	Residential	Commercial	Other Industrial	Selected Industrials			Street & Highway Lighting & Public Authorities	Interdept.	Railroads	USIIS	MTC Coops Total
					Anaconda	Exxon	Hoerner Waldorf					
1950	2,238,763	218,014	170,982	188,691	1,363,932	0	0	25,535	11,364	146,451	85,830	27,964
1951	2,314,720	236,344	184,984	188,990	1,361,304	0	0	30,365	10,241	158,235	90,622	53,635
1952	2,503,272	264,083	200,844	256,104	1,422,624	0	0	30,252	6,296	153,426	107,513	62,130
1953	2,521,367	289,568	206,501	235,769	1,469,052	0	0	35,318	4,326	147,718	62,399	70,716
1954	2,200,034	327,640	224,574	223,674	1,094,650	14,366	0	35,966	8,124	139,622	50,873	80,545
1955	2,661,238	372,304	247,548	252,912	1,445,267	18,504	0	37,832	5,759	148,636	42,911	91,565
1956	2,911,638	411,889	268,865	267,888	1,605,130	21,241	0	40,709	5,202	146,450	43,241	101,023
1957	2,806,071	447,324	292,637	279,229	1,435,485	22,156	325	44,415	3,793	121,109	52,700	106,900
1958	2,638,546	460,205	311,936	284,749	1,233,408	19,920	5,264	48,155	7,820	102,863	51,530	112,696
1959	2,302,890	500,166	340,862	308,313	770,880	25,202	5,171	60,488	16,352	94,383	55,347	125,726
1960	2,717,163	520,148	368,535	331,839	1,091,496	28,032	12,264	72,087	5,672	85,276	64,443	137,371
1961	2,735,318	547,422	403,542	342,352	1,048,572	28,908	22,776	89,791	4,114	78,899	72,555	146,387
1962	3,099,300	582,157	427,741	373,079	1,122,156	29,784	25,404	105,485	5,662	86,794	78,050	163,988
1963	3,036,170	597,651	451,264	392,020	1,038,936	31,536	35,040	125,714	5,193	83,554	89,720	185,542
1964	3,344,344	632,082	481,897	456,264	1,225,524	34,164	28,032	130,163	4,131	70,785	81,557	199,745
1965	3,597,985	673,483	520,797	452,705	1,330,644	56,064	39,420	140,621	4,772	81,033	84,581	213,865
1966	3,961,344	695,996	553,713	500,404	1,499,712	86,724	68,328	149,695	4,578	87,476	98,734	215,984
1967	3,528,717	717,091	589,852	498,698	991,632	101,616	111,252	161,368	5,699	81,684	103,899	165,926
1968	3,761,588	764,937	643,022	521,762	1,122,156	96,360	124,392	153,236	7,038	69,039	109,897	149,749
1969	4,258,704	820,698	690,395	588,314	1,451,532	104,244	127,896	137,916	7,630	56,734	113,428	159,917
1970	4,381,373	850,321	740,096	593,280	1,469,928	109,500	136,656	135,784	8,329	72,342	96,591	168,546
1971	4,352,893	912,861	796,792	769,561	1,131,800	134,028	135,780	132,325	9,516	79,943	91,995	191,292
1972	4,620,130	984,848	856,757	813,702	1,142,304	157,680	141,036	130,231	12,736	80,593	[illegible]78	205,665
1973	4,562,523	1,016,702	916,428	951,484	854,100	157,680	152,424	[illegible]35,347	12,616	51,569	96,726	217,447
1974	4,633,998	1,043,593	930,212	925,394	949,584	148,920	147,168	132,832	13,517	22,577	96,250	223,951
1975	4,667,477	1,143,941	996,749	885,995	883,884	148,920	106,872	139,203	13,899	-	97,189	253,825
1976	5,021,152	1,205,322	1,060,597	1,030,791	916,296	148,040	151,548	133,995	14,764	-	97,832	261,967
1977	5,239,716	1,299,608	1,129,770	1,066,784	932,229	144,693	151,018	125,055	16,161	-	97,977	276,421

EXHIBIT "G"

3/7/78

COLSTRIP 3 & 4 PARTICIPANTS
LOADS & RESOURCES
INCLUDING COLSTRIP 3 & 4

	1980-81		1981-82		1982-83		1983-84		1984-85		1985-86	
	PK	EN	PK	EN	PK	EN	PK	EN	PK	EN	PK	EN
Total Load												
Puget	2985	1728	3131	1814	3300	1908	3447	2001	3633	2100	3810	2208
PGE	2858	1755	2979	1839	3106	1922	3248	2016	3394	2118	3548	2224
PPL	4567	2745	4821	2908	5133	3079	5421	3159	5722	3339	6043	3529
WWP	1808	1069	1768	1067	1836	1071	1906	1104	1976	1138	2047	1172
MPC	1139	820	1185	855	1233	892	1284	931	1337	972	1393	1016
Total	13357	8117	13884	8483	14608	8872	15306	9211	16062	9667	16841	10149
Net Resources W/3 & 4												
Puget	3188	1627	3047	1584	3152	1667	3145	1656	3156	1693	3553	2031
PGE	4396	1638	4361	1770	4393	1831	4375	1781	4464	1852	4781	2173
PPL	4978	2855	5284	2847	5409	2890	4843	2878	4940	2948	5258	3209
WWP	1788	987	1721	971	1804	1041	1871	1058	1919	1105	2026	1189
MPC	1171	839	1172	835	1352	979	1531	1073	1532	1102	1534	1104
Total	15521	7946	15585	8007	16110	8408	15765	8446	16011	8700	17152	9706
Surplus (Deficiency)												
Puget	203	(101)	(84)	(230)	(148)	(241)	(302)	(345)	(477)	(407)	(257)	(177)
PGE	1538	(117)	1382	(69)	1287	(91)	1127	(235)	1070	(266)	1233	(51)
PPL	411	110	463	(61)	276	(189)	(578)	(281)	(782)	(391)	(785)	(320)
WWP	(20)	(82)	(47)	(96)	(32)	(30)	(35)	(46)	(57)	(33)	(21)	17
MPC	32	19	(13)	(20)	119	87	247	142	195	130	141	88
Total	2164	(171)	1701	(476)	1502	(464)	459	(765)	(51)	(967)	311	(443)

Commercial Operation Dates:
Colstrip #3 - July 1982
Colstrip #4 - May 1983

EXHIBIT "K"

3/7/78

COLSTRIP 3 & 4 PARTICIPANTS
LOADS & RESOURCES
EXCLUDING COLSTRIP 3 & 4

	1980-81		1981-82		1982-83		1983-84		1984-85		1985-86	
	PK	EN	PK	EN	PK	EN	PK	EN	PK	EN	PK	EN
Total Load												
Puget	2985	1728	3131	1814	3300	1908	3447	2001	3633	2100	3810	2208
PGE	2858	1755	2979	1839	3106	1922	3248	2016	3394	2118	3548	2224
PPL	4567	2745	4821	2908	5133	3079	5421	3159	5722	3339	6043	3529
WWP	1808	1069	1768	1067	1836	1071	1906	1104	1976	1138	2047	1172
MPC	1139	820	1185	855	1233	892	1284	931	1337	972	1393	1016
Total	13357	8117	13884	8483	14608	8872	15306	9211	16062	9667	16841	10149
Net Resources W/O 3 & 4												
Puget	3188	1627	3047	1584	3003	1544	2847	1415	2858	1430	3255	1768
PGE	4396	1638	4361	1770	4333	1782	4256	1685	4345	1747	4662	2068
PPL	4978	2855	5284	2847	5349	2841	4724	2782	4821	2843	5139	3104
WWP	1788	987	1721	971	1715	967	1692	914	1740	947	1947	1031
MPC	1171	839	1172	835	1174	832	1175	784	1176	786	1178	788
Total	15521	7946	15585	8007	15574	7966	14694	7580	14940	7753	16081	8759
Surplus (Deficiency)												
Puget	203	(101)	(84)	(230)	(297)	(364)	(600)	(586)	(775)	(670)	(555)	(440)
PGE	1538	(117)	1382	(69)	1227	(140)	1008	(331)	951	(371)	1114	(156)
PPL	411	110	463	(61)	216	(238)	(697)	(377)	(901)	(496)	(904)	(425)
WWP	(20)	(82)	(47)	(96)	(121)	(104)	(214)	(190)	(236)	(191)	(200)	(141)
MPC	32	19	(13)	(20)	(59)	(60)	(109)	(147)	(161)	(186)	(215)	(228)
Total	2164	(171)	1701	(476)	966	(906)	(612)	(1631)	(1122)	(1914)	(760)	(1390)

EXHIBIT "L"